# DESIGN: A CRITIQUE OF A METAPHOR

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Teaching art is basically a process of sharing socially derived knowledge about art with other persons. In order to communicate the cognitive configuration of art as it appears in our culture, it is necessary to use language. In art education, the visual arts are often thought of as a non-verbal symbol system for encoding experience. For this symbol system to be socially known about, however, it must be codified in language. As Hertzler (1965) has pointed out, "The key and basic symbolism of man is language. All the other symbol systems can be interpreted only by means of language?" (p. 29). Language is thus important in the conceptualization and teaching of art and warrants consideration as an area of inquiry by art educators.

The purpose of this paper is to examine in a phenomenological way, the language by which our thinking about design has achieved form. Design is a central concept in the visual arts that is shared with students in art programs from elementary to graduate school. While many persons are able to recite, like a litany, the elements and principles of design, few of them seem to know why these are central to knowing about art or where the idea of elements and principles came from. As such, design deserves some conceptual unraveling so that its social construction can be made apparent and reflected upon.

## Concepts and metaphor

One of the ways in which human beings differ from other living creatures is that they are able to alter and form their environment to a considerable degree. This is evident in the changes that human beings have made in the physical spaces they use and in the transformation of natural substances into objects that anthropologists call material culture. Human beings, however, do not limit their structuring activities to only the physical world, they also form and build symbolic structures of meaning by which they shape, encode, and interpret their experiences in the world (Berger and Luckmann, 1966). Max Weber and Clifford Geertz have pointed out that what we know as human beings is caught up in "symbolic webs of significance" (Geertz, 1973, p. 5).

An important aspect of these symbolic webs is that they are dependent upon metaphor. The philosopher Friedrich Nietzsche (Danto, 1965), remarked that there is a fictive quality about knowledge. He stated that we make images of our experiences in the world with metaphors and thereby transform it. For Nietzsche, social knowledge was seen to be art work in that, like artists, human beings create illusions that pose as reality. He noted that over time, the symbolic structures in which our thoughts are housed can take on the appearance of truth. We become accustomed to interpreting experiences and structuring reality with particular kinds of meanings and metaphors, and take their symbolic status for granted. Thus, concepts and



knowledge come to have a life of their own in which their human authorship is forgotten.

Recent inquiry into the ways that human beings structure experience with metaphors has been undertaken by Richard Harvey Brown (1977), and George Lakoff and Mark Johnson (1980). Brown's analysis of metaphorical thinking shows that metaphors appear in every form of knowledge and are the tools we use to relate various kinds of phenomena to one another. Brown noted that knowledge is also perspectival in that knowing something is always knowing if from some point of view formed by metaphor. The anecdote about three persons viewing the Grand Canyon illustrates this quite well. The first person to view the canyon was a land developer. This person looked out over the landscape and said, "What a great subdivision this would make!" The second person, a cattle rancher, looked at the canyon and said, "What a place to lose a cow!" The third person, a naturalist, looked and said, "What a work of art nature has wrought!" Each of these viewpoints enables us to metaphorically understand the Grand Canyon as either real estate, an annoyance, or a work of art. Through the cognitive functioning of metaphor, our experiences can be expanded to include many meanings by which new awarenesses can be gained.

Brown observed that there are three kinds of metaphors that we use in our thinking: iconic, analogic, and root. Iconic metaphors serve as models. They picture things and explain interrelationships of selected particulars to a whole. When artists are described as the type of persons who are creative geniuses, one aspect of the concept of human personality is being depicted as well as a model of the artist being given. Analogic metaphors involve comparisons as in the well known statement that architecture is frozen music. Root metaphors provide a paradigm or fundamental image of the world. These metaphors are the basis for world view and, as such, are not particularly consciously thought about. For example, the doctrine of "Art for Art's Sake" and the formalist aesthetic are inextricable parts of the world view of twentieth century Americans. Likewise, the idea that the highest form of art is history painting was an integral part of the eighteenth century world view of the French.

Lakoff and Johnson have focused on the process of constructing conceptual metaphors and point out that metaphorical thinking is grounded in our encounters with physical or material objects and events. In their account, four types of metaphor are involved in conceptualization: orientational, ontological, structural, and new.

Orientational metaphors refer to spatial orientations such as up-down and front-back. To illustrate, fine art is sometimes called high art, and New York City is considered to be the center of the art world. There is avant-garde art, and the art of the Low Renaissance and High Renaissance. Museums keep the Alma-Tademas and Bouguereaus down in the basement while the Estes' and Rodins are put on display in the upstairs galleries.

Ontological metaphors deal with entities and substances. Art is often cast as an entity in that we say that someone is in art, into art, or has gotten out of the art field. Some people devote their lives to art, while at the same time, perhaps, making a living off of or out of art.

Other examples are: art is a frill; art enriches life; the Arts and Crafts Movement gave birth to Art Nouveau.

Structural metaphors involve structuring one concept in terms of another. James McNeill Whistler's theory of art espoused in his "Ten O'Clock Lecture" structures are in terms of music. Many of Whistler's paintings have titles that use the words: nocturne, caprice, symphony, variation, and arrangement. He used these words because he believe that:

> Nature contains the elements, in color and form, of all pictures, as the keyboard contains the notes of all music. But the artist is born to pick and choose and group with science, these elements, that the result may be beautiful--as the musician gathers his notes, and forms his chords, until he bring forth from chaos glorious harmony. (Whistler, 1890/1953, p. 142)

New metaphors relate concepts in unusual ways and give new understandings. In art, one of the most outstanding examples of new metaphor is the transformation of the concept of art from the traditional view that it is a didactic and imitative enterprise to the modern view that it is significant form that obeys aesthetic laws.

Lakoff and Johnson noted that by adopting one kind of metaphor, aspects of our experience become either highlighted or hidden. For example, as a part of the intellectual legacy left by many nineteenth century artists, art is often thought of as a subjective experience dealing with the senses, personal expression, and feeling. By conceptualizing art in this way, we tend to lose sight of the cognitive and objective aspects of art experience.

## The concept of design

Design can mean: to conceive, invent, form a plan for, to draw a sketch of, a visual composition, a pattern, a drawing or a sketch, and the invention and disposition of the forms, parts, or details of something according to a plan (Morris, 1976, p. 357). In the Dictionary of Art, design is described as:

> The arrangement of the visual elements of an object or a work of art. In painting and sculpture, line, form, space, light, and color are among the elements that must be controlled in a consistent system, or through design, to create the desired image. In architecture and the decorative arts, design involves integrating functional necessity and a system or vocabulary of ornament....Design is the vehicle of expression for the designer, and it reveals the basic concepts of man varying with each era. The other definition of the word "design" as a preliminary sketch for a work of art is less important in contemporary usuage. (Schwartz, 1969, p. 246)



These contemporary conceptions of design are derived from root metaphors shaped through social action in a historical and cultural context. From a review of some of the literature about design, there appear to be five major root metaphors for housing this concept. I have called these: Disegno/Dessin, Nature, Ornament, Geometry, and Visual Grammar.

## Disegno/Dessin

One of the earliest contexts for design was formed by the Italian Renaissance. Design was known as disegno and had several meanings. For example, in northern Italy, many painters began their work by drawing outlines to indicate the edges of an object so that they would know where the colors to be applied would begin and end. This linear representation of objects was called disegno which literally meant drawing. Piero della Francesca (Baxandall, 1972) defined disegno as the "profiles and contours which enclose objects" (p. 141).

Alberti (1972) noted that disegno or "circumscription by itself is very often most pleasing" (p. 67). In his theory of art, circumscription, along with composition and reception of light, were the essence of painting for these can be found in nature. As a humanist, Alberti viewed painting as an activity governed by reason because all of existence conformed to general rules and order. Painters had as their purpose the rendering of the literal world in order to show these truths. Thus, a painter had to know about optics and geometry so that nature could be portrayed on a flat surface in an orderly way as it was actually seen. Disegno or circumscription, then, involved sketching the outlines of the figures and objects in perspective with correct proportion and proper spacing as reflected in the artist's composition based on nature's organization.

Disegno could also refer to the rough sketches presented to patrons that showed the content and arrangement, or idea, of a work. When approved, the work would then be brought to completion by the master and the apprentices (Paatz, 1974, p. 27).

Another meaning of disegno was the creation of an idea for others to execute. A considerable part of Michelangelo's work centered on making initial "designs" and sketches for other artists to carry out (Clements, 1961, p. 185). Michelangelo was a great exponent of disegno. He believed that design was the foundation of every art form because in design one composed, arranged, and created images by means of drawing. Underlying Michelangelo's advocacy of disegno was a Neo-Platonic conception of painting and sculpture as embodying Ideas. As espoused by Leonardo, drawing showed the visible form of an idea and invention which existed in the imagination (Blunt, 1956, p. 36). According to Michelangelo, the artist captured basic form. Thus, artists must first learn how to draw because design "is the root of all sciences" or knowledge (Clements, 1961, p. 310).

The painter, Federico Zuccaro (Blunt, 1956), conceived of disegno in a similar way. For Zuccaro, there were stages in the existence of an Idea: from the mind of God to the minds of the angels to the minds of men. This disegno interno had no substance, but reflected the divine in human beings. Zuccaro made a pun out of disegno and pointed out that the

word could be derived from segno di Dio (Blunt, 1956, pp. 141-142).

Vasari's version of disegno also suggests "that drawing is a sign or symbol of a deeper truth" (Paatz, 1974, p. 16). His understanding of disegno is worth quoting at length because he brings together several significant points.

> Seeing that Design, the parent of our three arts, Architecture, Sculpture, and Painting, having its origins in the intellect, draws out from many things a general judgment, it is like a form or idea of all the objects in nature, most marvelous in what it compasses, for not only in the bodies of men and animals but also in plants, in buildings, in sculpture and in painting, design is cognizant of the proportion of the whole to the parts and of the parts to each other and to the whole. Seeing too that from this knowledge there arises a certain conception and judgment, so that there is formed in the mind that something which afterwards, when expressed by the hands, is called design, we may conclude that design is not other than a visible expression and declaration of our inner conception and of that which others have imagined and given form to in their idea. (Quoted in Paatz, 1974, p. 16)

Another painter, Armenini (1586/1977), pointed out that there are different versions of disegno. Some artists "have said that design must be speculation born in the mind and an artful intellectual zeal put into action in accordance with the beautiful Idea" whereas others say it "is the science of the fine and regular proportions of everything seen, with an orderly composition in which gracefulness is created by appropriate measures, which may be attained through study and through the divine grace of good reasoning born of and nourished by study" (p. 109). Armenini accepted these opinions, but considered as more important:

> that design be as a living light of a fine mind and that it be of such strength and so universally necessary that he who is wholly lacking in it would be like a blind man, in that it is the visual eye that causes our minds to know what is decent and graceful in the world. (p. 110)

Armenini stated that those persons who have mastered design have "a complete knowledge of beauty, grace, and proportion, and truly grasp their eminent virtues..." (p. 112).

This Italian conception of art, artists, drawing, and design spread throughout Europe. It was the French version of this conception, however, that became the dominant force in shaping the subsequent style of art.

In the French Royal Academy, it was believed that students needed to begin their studies with drawing, especially outlining or the dessin au



trait. Such instruction was given at the Ecole des Beaux-Arts, consisting of drawing from antique casts and live models as well as lessons in anatomy and perspective. Study of sculpture and the human figure was important because ideal form was contained within them. The artist was not to actually imitate Nature, but to improve upon it and show beauty as it reposed in the ideal forms for the edification of the viewer of the art work. Study of this sort involved using linear design as the foundation of visual representation (Boime, 1971, p. 18). In France, dessin, as derived from disegno, emphasized structural design or the sketch-composition (Boime, 1971, p. 81). The sketch was crucial to the artistic process and was synonymous with composition. It was a preliminary step that showed the artist's premiere pensee. One could see the artist's arrangement for a final work and note "the spontaneity and movement of his initial inspiration" (Boime, 1971, p. 10). One of the methods of instruction used in the lectures at the French Royal Academy was to analyze completed works through discussion informed by categories for judging good art. There were derived from qualities to be found in the sketch: invention, proportion, color, expression, and composition (Pevsner, 1940, p. 94).

The French also established ecoles de dessin in the provinces so that students in these areas could receive instruction in drawing before making their entrance in the Ecole des Beaux-Arts. The Beaux-Arts prepared artists in the arts of design: painting, sculpture, and architecture. These were also called the beautiful arts and the fine arts. Artisans in the crafts and trades, or mechanical arts, also entered the drawing school, but not the school of fine arts. In the ecoles de dessin, artisans were to improve their taste and produce satisfactory designs and patterns for manufactured objects, and to understand the designs prepared for these objects by the artists.

Eventually, the idea of schools of design spread to England where they were established primarily for the purpose of training artisans in the decorative arts. Design in this context referred to applied art and the composition of ornamental patterns for manufactured items such as textiles, silverware, and pottery.

In this section, the language by which design has been conceived is highly symbolic and fictive. Design is grounded in a physical feature (an outline) and an action (drawing lines). In this form, design is an iconic metaphor in that it represents and is a sign for the edge of a mass or object. It is iconic, too, as a sketch. The drawing of outlines to form a picture is related to the pattern of life in the Renaissance. Baxandall's (1972) analysis offers insight into some of the analogic metaphors. There is an analogy between the painter surface and what is seen in nature. Another is between the widespread practice of mercantile geometry or gauging and the masses in drawings. Gauging involves being able to mentally reduce objects to geometrical figures in order to assess the volume of a commodity (p. 86). The viewer of a painting or sculpture could thus appreciate the masses delineated in the artist's work. One more analogy occurs between the practices for penetrating space and showing distance: surveying, plane geometry, and perspective, and the religious conception of the spiritual eye in which sight becomes keener in Heaven (p. 104). The spiritual eye concept was symbolically present in the composition of a painting of religious

figures. Then there is the conception of design as the Idea or being in the intellect, which is a structural metaphor. Design as the root of all knowledge is structural, too. Design is the way to know beauty, grace, and proportion. These terms were drawn from the literary criticism of the humanists and create another structural metaphor. Lastly, design as a working drawing returns design to an iconic metaphor.

Nature

The next conceptualization of design focuses on nature, especially on the observation and study of plant, animal, and rock forms. This conceptualization was rooted in the context of life in mid-nineteenth century England.

Many artists and designers at this time may have shown an interest in the forms of plants because of the availability of medieval books on medicine called Herbals or Books of Health (Hatton, 1906/1960). These were catalogues of plant descriptions and included woodblock prints of the plants so that they could be identified. The accuracy of these prints was somewhat questionable, but they were quite attractive from a decorative and aesthetic viewpoint. Gradually, with the rise of scientific inquiry into nature's secrets, the Herbals developed into books on botany with accurately drawn images of the plants.

In addition to the influence of botany, the concept of design was shaped by the practice of the medieval artist and the rise of decorative design. The writings of designer and architect, August Northmore Welby Pugin (Bøe, 1957) were particularly influential. Based on his religious convictions, Pugin believed that medieval art and the Gothic style were more honestly Christian than the classical style derived from the Greeks. He pointed out that classical art and architecture were based on pagan themes. Further, the Greek temple was an exercise in deception because stone was used in the same manner as wood. Beauty cannot be achieved through disguise, but through functional forms appropriately decorated. Medieval artists were to be admired because they used materials in a way that reflected the material's character and they also adhered closely to natural forms. They knew the principles of art, reason and function, by which a good design was created. As such, there were two rules to follow in design:

> 1st, that there should be no features about a building which are not necessary for convenience, construction, or propriety; 2nd, that all ornament should consist of enrichment of the essential construction of the building. (Quoted in Bøe, 1957, p. 25)

To put it another way, all parts of a design were to be there for a purpose. The design should fit the materials used and be appropriate to the intended function for which it was made.

John Ruskin (Bøe, 1957), likewise spoke against the pagan origins of art underlying the Renaissance and the classical style. He, too, embraced the idea of natural beauty and the Gothic ideal. He believed that nature was enobling. It was the source of beauty and happiness wherein lie grace and peace. In looking at nature, one looked at God and saw His law. The creation of art and design based on the study of nature was a praise of God.



Ruskin compiled a list of what the artist and designer should look at in nature based on the order of their nobleness. One should begin with crystals, waves, fire, clouds, shells, and fish, and end with reptiles, insects, vegetation, birds, mammalian animals, and man, in that order. Bøe (1957) noted that Ruskin's thoughts "echoed the Christian conception of man as the flower of creation" and the order of the list of natural forms resembled the Biblical order in which they were created (p. 98). Ruskin deplored geometrical and conventionalized designs and maintained that only the direct representation of natural form should be used in decoration and ornament.

The designer William Morris (Bøe, 1957) was influenced by Ruskin's ideas while attending Oxford. Morris admired the medieval artists because beauty grew out of everything they did. The teachers of the designer should be Nature and History. For Morris, design was not a science conforming to a set of rules, but experience derived from a solid knowledge of natural forms, drawing, and the designer's own work. Evidence of this was apparent in Morris' own designs for wallpaper, chintzes, and other home furnishings. Typical motifs that Morris used were the daisy, honeysuckle, and the dove.

Walter Crane, artist, designer, illustrator, teacher, and a friend of William Morris, published several texts on design. In one of these, Line and Form (1900), Crane stated that there were three fundamental elements or essentials of design: line, form, and space. He advocated looking at the "organic structure of nature: the radiating ribs of the scallop shell ...the set of feathers upon the expanded wing of a bird...the scales of fish; the scales of a pine-cone or artichoke" (p. 135). From such observation, one can perceive organic lines reflecting life and growth. These are apparent, too, in the shapes and form of leaves, trees, foliage, and space found in landscapes. The principles of harmonious composition can be discovered in nature. These "are illustrated throughout the visible world by the laws and forces of the material universe. It is for the artist to observe and apply them in his own work of re-creation" (p. 159).

Lilley and Midgley (1905), in A Book of Studies in Plant Form with Some Suggestions for Their Application to Design, maintained that good taste cannot be developed by a designer without study of nature's principles. These principles, as exemplified by the perfection of a cyclamen leaf, are: gradation, symmetry, contrast, repetition, variety, and radiation. In addition, one must consider fitness of purpose. Altogether, these principles of nature are synonymous with the principles of design.

In a textbook series for the public schools, The Use of the Plant in Decorative Design, Maude Lawrence and Caroline Sheldon (1912) defined design as the completed plan for a project. They claimed that "all good design conforms to certain definite principles" in order to achieve beauty (For the Grades, p. 9). These are: fitness to purpose, truthfulness to materials, unity, balance, and repose leading to proportion. These principles are evident in the laws of growth to which plants conform. In the books, various types of ornament are created by developing motifs from leaves, the poppy, the cowslip, the quince, the cherry, and the squash.

In another text for the schools, Designing with Wild Flowers, Nettie Smith (1927) stated that there are laws of beauty made apparent in art principles. "Nature reveals to all of us something of the Divine Plan, if we but recognize it and take the time to get in tune. Every tiny plant teaches lessons in order, fitness, and refinement to those who pause to see." (p. 8) Smith recommended three ways to look at a plant: as a botanist "to discover the marvels of plant life," as an artist "to find beauty of lines, form, and color," and as a designer "for simples details that we may adapt to many uses" (p. 13). For the purpose of studying design, Smith provided a design vocabulary that expressed the principles of beauty. "The Greeks considered the elements of beauty to be balance, symmetry, rhythm, harmony, and unity". (p. 14)

The language by which design appears as nature is quite metaphorical. Design shows or reflects the plan of nature and God. This is an iconic metaphor. That principles of design are the same as those found in nature signifies a structural metaphor. The idea that design is equal to beauty is an analogy. Design is in nature or is to be found in nature is an ontological metaphor. The association of purpose and function as characteristics or essentials of design are also ontological. There is a new metaphor in the switch of inspiration for good design from pagan and classical art to Christian and Gothic imagery.

## Ornament

The third conceptualization, design as ornament, is related to the concerns of designers and manufacturers during the late nineteenth century. Although the manufacture and production of well designed articles was of interest throughout Europe and the United States, it was the English who contributed the most thought to this matter. The context in which ornament is embedded is one shaped by industrialism, the education of workers, and the cultivation of good taste.

A popular approach to the problem of educating artisan-workers in industry was to provide them with pattern books showing historical styles, decorative mouldings, stylized natural forms, and motifs from the textiles, and craftwork of foreign countries.

One of the most famous pattern books was Owen Jones' (1910), A Grammar of Ornament. The illustrations were large and printed in color. This extravagance indicated the great importance of patterns. Of particular interest are Jones' thirty-seven propositions that comprise the general princples or arranging form and color in architecture and decorative art. Among these propositions are statements about: fitness, proportion, and harmony; the beautiful is true; ornament should be derived through geometrical construction; true and beautiful proportion is the most difficult to detect and rests on ratios such as five to eight and three to seven; and, natural objects should not appear as ornaments unless they are stylized.

Another classic pattern book was Franz Meyer's 1888/1946) Handbook of Ornament. Meyer used the terms ornament and decoration to depict, respectively, an element in the abstract and the application of elements by an artist to objects to beautify them. These elements are: patterns derived from geometry



and natural forms. Sources of inspirartion from these elements were the diaper, square, oblong, and circle; crystals, clouds, and wave; the laurel, olive, lotus, and ivy plants as well as fruit festoons; the lion, eagle, dolphin, and serpent; and the human head and figure. Decoration with these ornamental forms was accomplished by "arranging and joining Dots and Lines, or by combining and dividing Geometrical Figures, in accordance with the laws of rhythm, regularity, symmetry, etc." (p. vi). Meyer stated that there were more illustrations of the Antique than other styles in the book because it was the one style in which "form finds its clearest and most beautiful expression" (p. viii).

A major designer and contemporary of Morris and Crane was Christopher Dresser (1859, 1873). Part of his early career in design was spent studying botany and drawing botanical illustrations. One of the several books that he published, Unity in Variety (1859) was similar in character to the medieval Herbals. In the Principles of Decorative Design (1873), Dresser addressed the problem of educating the working class person aspiring to become a designer. As a designer, one had to know the laws of beauty and study them until the difference between the beautiful and the ugly could be perceived. Dresser offered for the designer-to-be's consideration, illustrations of the ornamental and decorative motifs of the past, an approach to apprehending beauty in them, and guidelines for applying the laws of beauty to the design of industrial products. Dresser's early theorizing about design did not differ greatly from that of other designers. Natural forms and ancient art were the basics upon which the creation of beautiful designs, ornament, and decoration depended. Later, Dresser considered non-representational and abstract design, based solely on the relationship of line, form, and color, to be beautiful in itself. This shift from the design of ornament or decoration to constructive design required that geometrical and abstract forms evident in nature be studied for their expressive power. The energy of growth seen in bursting buds and the impression of strength in the bones of a bird's wing were forceful and moving if captured in a design. The purely artistic elements of line, form, and color seen in natural objects provided the artist and designer with a means for expressing feelings and ideas (Bøe, 1957, pp. 137-139).

Richard Redgrave (1876), an Inspector-General in the British Schools of Design, shared a perspective on design that was somewhat similar to Dresser's. He noted that design and ornament were not the same. Design referred to the construction of objects for use and beauty, and included ornamentation. Ornament only implied the decoration of previously constructed objects. True designers and ornamentalists sought out the principles used by artists at all times to structure designs and ornament of excellence. Excellence in design, or good taste, was achieved through the laws of design drawn from the form of objects found in antiquities, nature, and foreign cultures. Pure design considered style, construction, and utility.

These ideas about design and ornament were espoused once again, with some variation, by Fred Daniels (1900), Director of Art Education in the Buffalo, New York Public Schools. Daniels said,

> "All ornament and design, all art, is a result of the careful study of nature---and of geometry, of which nature is the embodiment....In arranging a course in design we should, then, commence with nature, and lead toward the abstract and ideal. This would involve three steps: (1) Familiarity with natural forms (Primary grades.) (2) Study of naturalistic or slightly conventionalized units arranged conventionally. (3) Study of highly conventionalized and idealized designs (Intermediate and grammar grades.). (p. 22)

Daniels noted that "there are certain lines, forms and principles of composition which have for centuries been regarded as elements of beauty" (p. 25). These ideals of beauty in design grow out of sensual impressions derived from nature. The elements of beauty in nature and ornament which all pupils should know are: fitness to purpose, a unit, repetition, alternation, contrast, growing point, symmetry, radiation, rhythm, composition of line, balance, repose, naturalistic, conventionalize, and curvatures such as the spiral, force, and grace. The idea about curvature comes from Ruskin. According to Daniels, the work of the designer is to seek out beauty. Beautiful designs grasp the spirit of nature (p. 188). Daniels remarked, too, that "Art is used to express ideas" (p. 13) and is enjoyed according to the spectators understanding of it. His art curriculum did not emphasize just the study of design as a future vocational endeavor, but the cultivation, refinement, and elevation of aesthetic ideals so that children would appreciate the best in art. Daniels conceived of art as being all objects made by human beings inclusive of paintings and household furnishings. None of these were considered beautiful, however, until they expressed an art idea, that is, doing it well.

In design as ornament, the language refers most often to ontological metaphors. Design is in, coming from, or has characteristics of some kind. These ontological metaphors are: design comes from nature, geometry, and ancient art; design has laws and principles; design is in the construction-structure of an object; design can express; it can grasp the spirit of nature; and, it can be stylized, conventionalized, or idealized. Design is also a pattern or a motif which is an analogy. An iconic function is evident in: design shows good taste; and design is apparent in non-representational and abstract imagery.

Geometry

The fourth major conceptualization of design involes the ideas of order, proportion, and geometry. These ideas were part of a cultural context that included a rising public interest in science and the Greek Revival style around the turn of the century.

One of the articulators of this conceptualization was Denman Roos (1907). Roos was first a lecturer on the theory of design in Harvard's department of architecture and, later, was a member of the Fogg Art Museum fine arts department. He called his approach pure design. "Pure design is the arrangement and composition of lines and spots of paint for the sake of Order and Beauty, to give pleasure to the eye of the designer" (Ross, 1907, p. 6). Order is



revealed in nature and, by means of design, in works of art. Order, in which Beauty is found, is comprised of three parts or modes: harmony, balance, and rhythm. Ross believed that there were principles in the practice of art as there were in any endeavor and especially so in the case of science. If these principles for achieving Order through design could be defined and explained, as a science of art, then not only artists, but the public could understand how art is practiced. Ross used many examples to show how design contributed to Order. Some of these examples resemble the visual patterns that are a part of the Gestalt theory of perception, while others look like diagrams for simple problems in geometry. A series of dots were arranged in several positions to show rhythm, and angles and arcs were placed in a variety of relationships to show harmony. According to Ross, the terms and principles in his theory are "the form of the language" or the mode of expression used by artists.

Ross was also interested in Jay Hambidge's (1926, 1960) conception of design called dynamic symmetry. Hambidge's ambition was to discover the technical bases of design. Dynamic symmetry was based entirely upon a geometry of proportional relationships that had been developed by the ancient Greeks in the classical era. These Greeks understood how to consciously use symmetry and rhythm to create excellent design. One of Hambidge's students, Christine Herter (1966), described his theory in this way:

> Dynamic symmetry, as an instrument of design, is a presentation of a natural law recorded by man in linear form, described geometrically and noted arithmetically. The spaces thus created are rectangles of particular shape and content. The relationship between their ends and sides is primarily one of area and not of line....The natural law which determines these rectangles also determines their division and subdivision proportionately to their over-all shape. It makes these proportions knowable for what they are and gives the spaces so divided a dynamic, living quality. (p. xi)

Dynamic symmetry involved such concepts as the root rectangle and the Law of Phyllotaxis. Root rectangles are achieved by drawing a square and then drawing a diagonal in it. A compass point is placed at the bottom of the diagonal line and then an arc is drawn from the top of the diagonal to the base line of the square. The result is a rectangle. This exercise can be repeated by drawing a diagonal in the rectangle and drawing another arc.

The Law of Phyllotaxis refers to the proportional distance between leaves on a growing plant. This proportion can also be seen in the arrangement of seeds on a sunflower head. The swirled pattern of the seeds consists of two rows. One direction has 34 seeds and the other, 55. Added together they make 89. These numbers belong to what Hambidge referred to as a summation series. Each number in the series is the sum of the numbers before it. This series is sometimes called the Fibonacci series after a thirteenth century Italian man who introduced Arabic numbers into European thought (Eves, 1964, p. 211). If any two succeeding numbers in the series,

such as 55 and 89, are divided, the lesser number into the larger, there is a ratio of 1.618 plus. If one divides the other way, the larger into the lesser, the result is a ratio of .618 plus. The difference between the ratios is the number 1, or unity. The Greeks called this ratio the extreme and mean ratio. During the Middle Ages, the ratio was known as the Divine Section, and later on, as the Golden Section or Golden Rectangle. Any composition or design based on this proportion was believed to be satisfying and pleasant. Hambidge illustrated the use of dynamic symmetry in designing a chair, a book, and a compositional layout.

Samuel Colman (1912/1971) was likewise interested in harmonic proportion as the basis of design. He received some help from Hambidge, but his work was different from Hambidge's geometric analyses of squares and rectangles in that he focused more upon natural forms. Colman stated: "Proportion is a principle in Nature which is a purely mathematical one and to be rightly interpreted by man through the means of geometry; therefore geometry is not only the gateway to science but it is also a noble portal opening wide into the realm of art" (p. 1). Colman analyzed the structure and design of snow crystals, diatoms, flowers, shells, butterflies, the orbits of the planets, and the human figure. He then showed how the proportional relationships discovered in these things are used in the design of buildings.

This conception of design was also adopted by Walter Dorwin Teague (1940) and Marjorie Bevlin (1970). Teague stated that "the art of design (is) the art of enforcing order on material substances for our service and statisfaction" (p. 40). He believed that there were laws of design of which one was rhythm of proportion as Hambidge conceived it. Others were: fitness to function and materials, unity, and simplicity.

Bevlin stated that "Order, or design, can in fact be interpreted as the foundation of all living; consequently, any good design is, first of all, a plan for order" (p. 4). She believed that nature was the master of design in which there were fundamental truths or principles for the designer to observe. These were a concern for rhythm, variety, balance, form, and unity. By combining the elements of line, color, texture, size, shape, and mass through these principles, the designer had all of the ingredients needed to create a design.

Design as geometry is visible in the abstract structures of nature. This language casts design as an analogic metaphor. Other analogies about design are: dynamic symmetry is a process of design; design is arrangment and composition; and design is based on proportion. Design reveals order is an iconic metaphor, but design is order is a structural metaphor. Design is an art is a structural metaphor, too. Ontological metaphors are: design is pure, good or bad, and a thing to create; and, the structure of nature and geometry is reflected in design.

## Visual Grammar

The fifth and last conceptualization of design is visual grammar. This conceptualization has its basis in the idea that art is a language and design is the grammar by means of which art or pure form speaks. To put it another way, art is communication and expresses the feelings and thoughts of the



artist. The context surrounding this conceptualization involves the aesthetic movement and the rise of individualism at the beginning of the twentieth century.

One version of this conceptualization is found in Ann Ferebee's (1970), A History of Design from the Victorian Era to the Present. Ferebee stated that "style is the designer's language. Its grammar consists of form, line, color, texture, and material. In coherently combining these elements, designers make statements--statements that are important because they provide a key to understanding the culture from which they emerge" (p. 8).

An earlier version of design as visual grammar was taught by Arthur Wesley Dow (1924) at Columbia University. Dow published a book called Composition by which he meant "the putting together of lines, masses, and colors to make a harmony" (p. 3). He perferred to use the word design rather than composition, but at that time design was conceived as decoration. Dow thought that composition, or design, was the fundamental process of all of the fine arts. A knowledge of composition provided the foundation for expression. According to Dow, there are three elements of composition--line, notan or dark-light, and color--that are to be arranged in fine relations or harmony. Harmony is created through the principles of composition which are: opposition, transition, subordination, repetition, and symmetry. These are "dependent upon a great general principle: proportion or good spacing" (p. 21). The elements and principles together form the structure of art.

For Roger Fry (1924), the elements of design arouse emotion which is the essential business of the artist. Fry listed five elements: line, mass, space, light/shade, and color through with the artist may directly convey feeling (p. 33). If the artist's expression rests upon these elements and their ability to general emotional states based in the physiological nature of human beings, then "the idea of Likeness to Nature" can be dispensed with as a test of good art (p. 38).

Laslo Moholy-Nagy (1947), the first Director of the Institute of Design in Chicago, spoke of a new approach to art which he called a Design for Life. He said, "Art is the realm of emotional communication, inspired by the subconscious as well as the conscious existence. Its imagery is inherent in and connected with the sensory experiences..." (p. 27) Moholy-Nagy did not support a hierarchy of the arts wherein painting was held in higher regard than the crafts and industrial design. All forms of art were equally valid in their ability to fuse function and content in design. Design "is the organization of materials and processes in the most productive, economic way, in a harmonious balance of all elements necessary for a certain function" (p. 42). Design is necessary in all aspects of life: emotional experience, the family, labor relations, city planning, and working together. All problems in design are related to the basic problem of design for life (p. 42).

Faulkner, Ziegfeld, and Hall (1941/1963) claimed that good design is not just applied, but is integrative. Design concerns a purposeful plan, conception, and expression of an artist's knowledge and feelings (p. 372). "Design is a kind of universal syntax through which artists communicate their ideas" (p. 377). There are three principles of design: balance, continuity or rhythm, and emphasis. These principles are guides in the organization of

the plastic elements: form, line, space, texture, and color, to achieve the two aims of organization--form follows function and variety in unity--as they are seen in natural phenomena.

According to Maitland Graves (1951), art is man-made order or form derived from natural order. To create form, an artist organizes the elements of design, of which there are seven: line, direction, shape, size or proportion, texture, value, and color. There are principles of design or laws of relationships that determine the ways in which the elements may be combined to achieve aesthetic order. They are: repetition, alternation, harmony, gradation, contrast, dominance, unity, and balance. These principles are aesthetically valid because they are grounded in the physical world. The principles are also shared by the arts of music, poetry, literature, and ballet.

Edmund Feldman (1970) maintained that learning about art is a matter of "reading" it. To do this, one has to study the language of art which includes the visual elements, design, and style. Through the language of art, the artist expresses ideas and emotions. The elements of line, shape, light and dark, and color are combined and arranged by means of the principles of unity, balance, rhythm, and proportion. Through various combinations and arrangements, artists can make us feel calm, excited, happy or disappointed. "Art is an attempt to communicate ideas and feelings through vision" (p. 264).

A popular text in basic design courses has been Art Fundamentals: Theory and Practice by Ocvirk, Bone, Stinson, and Wigg (1975). They stated that "art deals with visual signs to convey ideas, moods, or generalized emotional experiences. It may be called a language of visual signs" (p. 6). Art conveys no information as words do. The meaning of art is captured by means of intuition. "Works of art may be called unique form experiences intended to evoke sensation in the observer" (p. 9). The work of art should be approached with an aesthetic framework as one would approach poetry or a symphony concert. Because they do not partake of the practical, works of art are not the same as the work of designers and architects. A work of art has subject matter, form, and content or meaning. The artist responds to a subject and interprets it through form. Form includes the design or organization of visual devices or elements. These are: lines, shapes, values, textures, and colors. There are universal principles of design or rules of composition and harmony that are used in relating the elements to one another. Beauty of form can be achieved through orderly composition of the elements. The artistic arrangement of the elements can give pleasure wherein lies the content or meaning of a work. Aesthetic value is derived from the viewer's experience of the work and an interpretation of its content.

In this last section, design conceived as visual grammar, there are also several types of metaphor. Structural metaphors are: design is a statement; design is a fundamental process of expression; it is a universal syntax for communicating ideas; and, the design principles are aesthetically valid. Some analogic metaphors are: design involves visual language; design is a purposeful plan; it is organization; the elements and principles of design are derived from natural phenomena grounded in the physical world and they are the same in all the arts. There is an orientational metaphor in design is necessary to life and design is integrative. Ontological metaphors are:



the elements of design arouse emotions; design conveys feelings; design has seven elements; design is a part of the language of art; and design is a part of form.

## Conclusion

From the twistings and turnings of the concept of design as it passed from mind to mind and generation to generation, it is clear that it is socially constructed knowledge derived from experience in the physical world. The concept has been embellished and expanded, as well as connected to other "fictive" ideas, through metaphor. Thus, metaphor is important, cognitively, to our understanding of design. The language by which design is configured in the Renaissance is the most symbolic compared to the language used in the twentieth century. Design as visual grammar reflects some of the Renaissance meanings, but the reasons for design as an expressive device are not made clear. Much is taken for granted.

References


Alberti, L.B., On painting and on sculpture, (tr. by C. Grayson). London: Phaidon, 1972.

Armenini, G.B., On the true precepts of the art of painting (tr. by E. Olszewski). New York: Bunt, Franklin & Co., Inc., (1586)1977.

Baxandall, M., Painting and experience in fifteenth century Italy. Oxford: Clarendon Press, 1972.

Berger, P., & Luckmann, T., The Social construction of reality. Garden City, NY: Doubleday, 1976.

Bevlin, M.E., Design through discovery (2nd ed.). New York: Holt, Rinehart and Winston, 1970.

Bøe, A., From Gothic revival to functional form. Oslo: Oslo University Press, 1957.

Boime, A., The academy and French painting in the nineteenth century. London: Phaidon Press, 1971.

Blunt, A., Artistic theory in Italy, 1450-1600. London: Oxford University Press, 1956.

Brown, G.H., A poetic for sociology. London: Cambridge University Press, 1977.

Clements, R.J., Michelangelo's theory of art. New York: Macmillan, 1965.

Colman, S., Nature's harmonic unity. New York: Benjamin Blom, (1912)1971.

Crane, W., Line and form. London: George Bell, 1900.

Danto, A.C., Nietzsche as philosopher. New York: Macmillan, 1965.

Dresser, C., Unity in variety. London: James S. Virtue, 1859.

Dresser, C., Principles of decorative design. New York: St. Martins Press, (1873)1973.

Dow., A.W., Composition. New York: Doubleday, Page and Co., 1924.

Eves, H., An introduction to the history of mathematics (rev. ed.). New York: Holt, Rinehart, & Winston, 1964.

Faulkner, R., Ziegfeld, E., & Hill, G., Art today. New York: Holt, Rinehart, & Winston, (1941)1963.

Feldman, E.B., Becoming human through art. Englewood Cliffs, NJ: Prentice-Hall, 1970.





Ferebee, A., A history of design from the Victorian era to the present. New York: Van Nostrand Reinhold, 1970.

Frey, R., Vision and design. New York: Brentano, 1924.

Geertz, C., The interpretation of cultures. New York: Basic Books, 1979.

Graves, M., The art of color and design (2nd ed.). New York: McGraw-Hill, 1951.

Hambidge, J., The elements of dynamic symmetry. New York: Dover, (1926) 1953.

Hambidge, J., Practical applications of dynamic symmetry. New York: Devin-Adair, (1932)1960.

Hatton, R.G., Handbook of plants and floral ornament. New York: Dover, (1906)1960.

Herter, C., Dynamic symmetry: a primer. New York: W.W. Norton, 1966.

Hertzler, J.O., A sociology of language. New York: Random House, 1965.

Jones, O., A grammar of ornament. London: B. Quaritch, 1910.

Lakoff, G., & Johnson, M., Metaphors we live by. Chicago: University of Chicago Press, 1980.

Lawrence, M., & Sheldon, C., The use of the plant in decorative design (for the Grades, and For the High School). New York: Scott Foresman, 1912.

Lilley, A.E., and Midgley, W., A book of studies in plant form with some suggestions for their applications to design. New York: Scribner's, 1905.

Meyer, F.S., A handbook of ornament. Chicago: Wilcox and Follet, (1888) 1945.

Moholy-Nagy, L., Vision in motion. Chicago: Paul Theobald, 1947.

Morris, W. (Ed.), The American heritage dictionary (New College edition). Boston: Houghton Mifflin, 1976.

Ocvirk, O.G., Bone, R.O., Stinson, R.E., & Wigg, P.R., Art fundamentals: theory and practice (3rd ed.). Dubuque, IA: Wm. Brown Co., 1975.

Paatz, W., The arts of the Italian Renaissance. New York: Harry Abrams, 1974.

Pevsner, N., Academies of art. London: Cambridge University Press, 1940.

Redgrave, R., Manual of design. London: Chapman & Hall, 1876.

Ross, D., A Theory of pure design. Boston: Houghton Mifflin, 1907.

Smith, N.S., Design with wild flowers. Milwaukee: Bruce Publishing Co., 1927.

Schwartz, M.D., "Design," Dictionary of art, B.S. Myers, Ed. New York: McGraw-Hill, 1969.

Teague, W.D., Design this day. New York: Harcourt Brace, 1940.

Whistler, J., The gentle art of making enemies. London: William Heinemann, (1890)1953.



Summary of

# FUTURES RESEARCH METHODOLOGIES: A REPORT OF AN EXPLORATION OF A DELPHI STUDY

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In an unpublished "Second Report on a Survey of Doctorates in Art Education" (Kula, 1979), the author examined the responses of persons with doctorates in art education with regard to those items which dealt with their perceptions of the field as it existed both at the time of the survey (Spring, 1978) and as they perceived the future might be. The responses suggested a lack of consensus regarding the present state of art education as well as little agreement regarding the direction(s) the field ought to be taking. Although the survey form used was quite lengthy, most information solicited was provided with the exception of those questions regarding future projections.

The results of the survey motivated this researcher (1) to investigate appropriate research methodologies to be applied to art education for forecasting future possibilities for the field and (2) to ascertain leadership groups in the profession who would be influential in planning for and designing alternative futures for art education.

At the National Art Education Association conference held in Atlanta in 1980, the author presented a session on "Futures Research Methodology and Potential for Art Education." During the session various futures research methodologies were discussed with regard to their application to art education. It was assumed by the presenter that those participants in the session comprised a very broad leadership with varying areas of expertise in the field. It was also assumed that those persons who were still in attendance at the end of the session had an interest in futures research possibilities.

At the conclusion of the session, 22 participants were asked to complete Round One of a Delphi study questionnaire prepared for the purpose of eliciting responses regarding the future of art education. The Delphi method was selected as most appropriate to this exploration because it is a multi-step, systematic process for extracting "expert" intuitive expectations of alternative possible futures.

Participants were provided ten statements for their responses. They were asked to (1) include the date they believed the statement would be implemented, (2) indicate the level of confidence they had in making the forecast and (3) rate the extent to which they believed this would be a desirable accomplishment. Space was provided for comments regarding each statement. Names and addresses of participants were obtained in order to provide feedback from Round One of the Delphi and to obtain responses to Round Two.